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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/786,151 | 02/26/2004 | Mitsutoshi Miyasaka | 118490 | 7277 |
| 25944 | 7590 | 01/11/2006 | EXAMINER | |
| OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320 | | | FENTY, JESSE A | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2815 | |

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/786,151 | Applicant(s) MIYASAKA, MITSUTOSHI | |
| | Examiner Jesse A. Fenty | Art Unit 2815 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 – 4, 7, 9 – 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al. (U.S. Patent No. 5,858,823).

With regard to Claims 1 and 14, Yamazaki discloses a complementary thin-film transistor circuit (column 1, lines 9-14), comprising:

a first conductivity type thin-film transistor and a second conductivity type thin-film transistor (p-channel and N-channel) formed using single crystal grains (121, 122) (column 14, lines 1 - 11 and figure 8B), the single crystal grains being formed substantially centered on each of a plurality of starting points (i.e. the center portion of each 121 and 122) disposed on an insulating surface of a substrate (10),

the first conductivity type thin-film transistor and the second conductivity type thin-film transistor formed in the single-crystal grains (121, 122) in which at least the channel regions the first conductivity type thin-film transistor and the second conductivity type thin-film transistor have the same plane orientation (figure 8B).

The term, "pre-positioned" refers to the process for making this product.

Applicant is reminded that a "product by process" claim is directed to the product per se,

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no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear.

With regard to Claim 2, Yamazaki discloses a first conductivity type thin-film transistor and a second conductivity type thin-film transistors (p-channel and N-channel) formed in one single crystal grain, since there is no grain boundary (column 4, lines 47-50) between single crystal grains (121, 122).

With regard to Claims 3 and 15, Yamazaki discloses electric field relief regions (17a, 17b) which are formed at both sides of the channel regions of the first conductivity type thin-film transistor and a second conductivity type thin-film transistors p-channel and N-channel), the channel regions being sandwiched between the electric field relief regions, which are composed of low-concentration impurity regions, the electric field relief regions and the channel regions formed in the same single crystal grain (figure 8B).

With regard to Claims 4 and 16, Yamazaki discloses a channel region formed in a region in the single crystal grain that does not include the starting point portion (i.e. the center portion of the single crystal grain) (see figure 12A).

With regard to Claims 7, 9-11 and 19, the claims contain limitations directed to process steps, which do not structurally or patentably distinguish the claimed invention from that disclosed by Yamazaki, the method of forming the device is not germane to the issue of patentability of the device itself.

With regard to Claims 12 and 13, Yamazaki discloses an electro-optical device or electronic apparatus comprising a complementary thin-film transistor as described by the reference in relation to claim 1, more specifically, the reference discloses a structure that is part of an active matrix display type liquid crystal display (column 13, lines 20-27).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5, 6, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (as above)¹.

¹ Note that this is not a new grounds of rejection. Examiner is simply placing this rejection properly under the 35 USC 103 obviousness heading. The obviousness rejection was inadvertently placed under 35 USC 102. The rejection language is the same.

5. With regard to Claim 5, 6, 17 and 18, it would have been obvious to modify the structure as disclosed by Yamazaki to pattern the single crystal grain in an U-shape or rectangular shape, since applicants have presented no explanation that these particular configurations of the single crystal grain are significant or are anything more than one of numerous configurations a person of ordinary skill in the art would find obvious for the purpose of providing a semiconductor layer for the purpose of forming transistor structures. A change in shape is generally recognizing as being within the level of ordinary skill in the art. In re Dailey, 149 USPQ 47 (CCPA 1976).

6. Claims 8 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. Patent No. 5,858,823) in view of Ishihara et al. ("Advanced Excimer-Laser Crystallization Techniques of Si Thin-Film For Location Control of Large Grain on Glass", Proceeding of SPIE, Vol. 4295, Pages 14-23, 2001).

With regard to Claims 8 and 20, Yamazaki essentially discloses the claimed invention but fails to disclose the claimed starting-point portion being a concave portion formed on an insulating substrate. However, Ishihara discloses a crystallization method in which a concave portion is formed on an insulating substrate which acts as a starting point for the crystallization (see page 19, under section 3.2 "Grain-Filter Process"). Therefore, it would have been obvious to someone with ordinary skill in the art, at the time of the invention, to modify the structure as disclosed by Yamazaki to include the claimed starting-point portion being a concave portion formed on an insulating substrate, as suggested by Ishihara, since allows for an irradiation process with an

energy higher than that for a complete melting of the thin-film silicon film, thus more heat can be introduced in the film, and the cooling rate at the onset of solidification of the film will be reduced so that lateral growth can be continued longer.

Response to Arguments

7. Applicant's arguments filed 10/20/05 have been fully considered but they are not persuasive.

Applicant argues that the "monodomain" regions 121 to 123 cited by the prior art are not single crystal grains. Applicant relies upon the section (column 14, lines 5-11) of the Yamazaki ('823) reference where Yamazaki disclose that said layers are "characterized to be similar to 'single crystal silicon.'"

Examiner respectfully disagrees. The quoted language of Yamazaki does not explicitly exclude the monodomain regions 121 to 123 from being single crystal grains. Rather, Yamazaki simply describes that said regions have similar characteristics to another type layer, but does not rule out that said layers are not single crystal grains.

On the contrary, a second Yamazaki reference, Yamazaki et al. (US 2005/0230755 A1), cited here for distinction, points out that the term "monodomain region" is analogous to "single crystal grain," (pp. 2, sections [0026 – 0027]).

Therefore, the prior art Non-Final Rejection of 08/19/05 is maintained.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

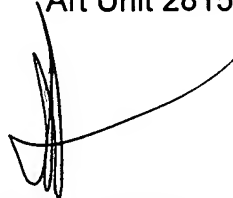
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse A. Fenty whose telephone number is 571-272-1729. The examiner can normally be reached on 5/4-9 1st Fri. Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jesse A. Fenty
Examiner
Art Unit 2815

A handwritten signature in black ink, appearing to read 'KENNETH PARKER', written over a horizontal line.

KENNETH PARKER
SUPERVISORY PATENT EXAMINER